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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,987	01/24/2007	Takaki Yasuda	Q80398	6422

23373 7590 07/06/2009

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EXAMINER	
SINGAL, ANKUSH K	

ART UNIT	PAPER NUMBER
2895	

MAIL DATE	DELIVERY MODE
07/06/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,987	YASUDA ET AL.	
	Examiner	Art Unit	
	ANKUSH k. SINGAL	2895	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/09/2009 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson(US 6,975,660) in view of Ozaki (JP 2002223042)

Re. claim 1, Johnson discloses a pn junction type Group III nitride semiconductor light-emitting device comprising a light-emitting layer of multiple quantum well structure in which well layers(120) and barrier layers(125) including Group III nitride semiconductors are alternately stacked periodically between an clad layer(108) and a clad layer(112) which are formed on a crystal substrate and which include Group III nitride semiconductors(Figure 12, columns 7-9).

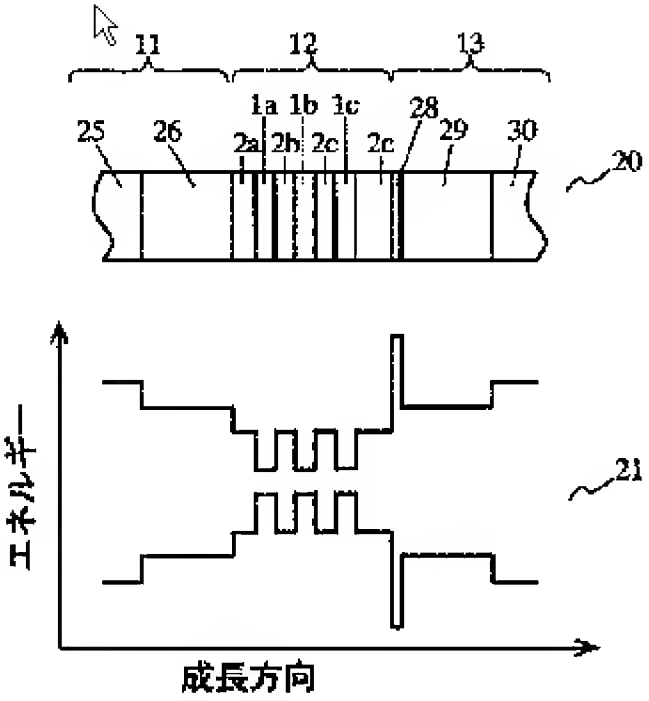
Johnson does not teach wherein a first end layer of the light-emitting layer is closest to and opposed to the n-type clad layer, and the second end layer of the light-emitting layer is closest to and opposed to the p- type clad layer, both the first and second end layer are barrier layers, and the second end layer is thicker than the barrier layer of the first end layer, and wherein the barrier layers other than the second end layer have a thickness of 15nm or more and .510 nm or less, and the second end layer has a thickness of1.2 or more times and 2.5 or less times the thickness of the barrier layers other than the second end layer.

However, Ozaki et al. teaches wherein a first end layer(2a) of the light-emitting layer is closest to and opposed to the n-type clad layer(25), and the second end layer(2c) of the light-emitting layer is closest to and opposed to the p- type clad layer(30), both the first and second end layer are barrier layers and the second end layer(2c) is thicker than the barrier layer of the first end layer(2a) and the second barrier layer(2c) has a thickness greater than the thickness of the barrier layer other than the second barrier layer (as shown in the figure below)(Para[0048-0056]) so that the isoelectronic level in the light emitting layer and the quantum level in the barrier layer will fulfill the resonance conditions but does not teach wherein the barrier layers other than the second end layer have a thickness of 15nm or more and .510 nm or less, and the second end layer has a thickness of1.2 or more times and 2.5 or less times the thickness of the barrier layers other than the second end layer. However Johnson and Ozaki in combination disclosure for given conditions of the claimed invention , the claim range is considered to be an obvious matter of finding an optimum workable range for some chosen design requirement utilizing Johnson and Ozaki in combination method.

Note that it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves routine skill in the art. In re Aller, 105 USPQ 233.

Any difference in the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an

extent that the difference is really unexpected. In re Merck & Co.,800 F.2d 1091,231 USPQ 375 (Fed. Cir. 1986)



Re. claim 4 as discussed above in claim 1, Johnson and Nakatsu et al. in combination disclose all the limitations as discussed above in claim 1 including the second end layer has joined thereto a well layer which is not intentionally doped with impurities(Figure 4, Ozaki).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson(US 6,975,660) in view of Ozaki (JP 2002223042) as applied to claim 1 and further in view of Itaya et al.(JP 7086637).

Re. claim 2 as discussed above in claim 1, Johnson and Nakatsu et al. in combination disclose all the limitations as discussed above in claim 1 except wherein each of the barrier layers has a thickness increased gradually from the first end layer toward the second layer.

However, Itaya et al. teaches wherein each of the barrier layers has a thickness increased gradually from the first end layer toward the second layer(Para[0027-0029]) to be applicable in semiconductor laser.

Therefore it would have been obvious for one with ordinary skill in the art at the time the invention was made to provide Johnson and Nakatsu et al. in combination structure with wherein each of the barrier layers has a thickness increased gradually from the first end layer toward the second layer of Itaya et al. to be applicable in semiconductor laser.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson(US 6,975,660) in view of Ozaki (JP 2002223042) as applied to claim 1 and further in view of Marui et al. (JP 2001102629).

Re. claim 3 as discussed above in claim 1, Johnson and Nakatsu et al. in combination disclose all the limitations as discussed above in claim 1 except wherein the second end layer has an impurity concentration low at its junction portion relative to the well layer, highest at its central portion and reduced gradually from the central portion toward the p-type clad layer.

However, Marui et al. teaches wherein the second end layer has an impurity concentration low at its junction portion relative to the well layer, highest at its central portion and reduced gradually from the central portion toward the p-type clad layer(Para[0025-0042]) for obtaining a LED element with blue light.

Therefore it would have been obvious for one with ordinary skill in the art at the time the invention was made to provide Johnson and Nakatsu et al. in combination structure with wherein the second end layer has an impurity concentration low at its junction portion relative to the well layer, highest at its central portion and reduced gradually from the central portion toward the p-type clad layer of Marui et al. for obtaining a LED element with blue light.

Response to Arguments

Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANKUSH k. SINGAL whose telephone number is (571)270-1204. The examiner can normally be reached on monday-friday 7am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Richards can be reached on (571)272-1736. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Fernando L. Toledo/
Primary Examiner, Art Unit 2895

/A. k. S./
Examiner, Art Unit 2895